

Appl. No. 09/976,310

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claims 1 to 4 (cancelled)

Claim 5 (currently amended): A multi-service segmentation and reassembly (MS-SAR) integrated circuit, comprising:

- a first bus interface;
- lookup circuitry;
- segmentation circuitry;
- ~~reassembly~~ reassembly circuitry;
- a second bus interface; and

a data path extending from the first bus interface to the lookup circuitry, and from the lookup circuitry to the segmentation circuitry, and from the segmentation circuitry to the reassembly circuitry, and from the reassembly circuitry to the second bus interface, wherein both cell-protocol traffic and packet-protocol traffic pass over the data path from the first bus interface, through the lookup circuitry, through the segmentation circuitry, through the reassembly circuitry and out of the integrated circuit from the second bus interface, the lookup circuitry analyzing the cell-protocol traffic and outputting information that causes the cell-protocol traffic to be processed in a first way by the segmentation circuitry and the reassembly circuitry, the lookup circuitry analyzing the packet-protocol traffic and outputting information that causes the packet-protocol traffic to be processed in a second way by the segmentation circuitry and the reassembly circuitry, wherein: 1) the integrated circuit is operable in a first ingress mode such that traffic is output from the integrated circuit to a cell-based switch fabric via the second bus interface, 2) the integrated circuit is operable in a second ingress mode such that traffic is output from the integrated circuit to a packet-based switch fabric via the second bus interface, 3) the integrated circuit is operable in a first egress mode such that traffic is received onto the integrated circuit from a cell-based switch fabric via the first bus interface, and 4) the

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integrated circuit is operable in a second egress mode such that traffic is received onto the integrated circuit from a packet-based switch fabric via the first bus interface.

Claims 6 to 10 (cancelled)

Claim 11 (previously presented): A switching device, comprising:

a first multi-service segmentation and reassembly (MS-SAR) integrated circuit;

a switch fabric; and

a second multi-service segmentation and reassembly (MS-SAR) integrated circuit, a flow of network information passing into the first MS-SAR, and then through the first MS-SAR, and then through the switch fabric, and then through the second MS-SAR, and then out of the second MS-SAR, wherein the flow passing into the first MS-SAR is of a first traffic type, and wherein the flow passing out of the second MS-SAR is of a second traffic type, wherein the switching device can process the flow for all the four following pairs of first and second traffic types: 1) the first traffic type is ATM and the second traffic type is ATM, 2) the first traffic type is ATM and the second traffic type is packet, 3) the first traffic type is packet and the second traffic type is ATM, and 4) the first traffic type is packet and the second traffic type is packet, wherein the first and second MS-SAR integrated circuits are substantially identical integrated circuits, the first and second MS-SARs being configurable such that the switch fabric can be either a cell-based switch fabric or a packet-based switch fabric.

Claims 12 to 44 (cancelled)

Claim 45 (currently amended): A switching device, comprising:

a switch fabric; and

a multi-service segmentation and reassembly (MS-SAR) integrated circuit having a first bus interface and a second bus interface, the second bus interface being coupled to the switch fabric, network information passing through the first bus interface of the MS-SAR, the network information including a first flow of cell-protocol traffic and a second flow of packet-protocol traffic, the MS-SAR being configurable in either a first way for operation with a cell-based switch fabric as the switch fabric or a second way for operation with a packet-based switch fabric as the switch fabric- wherein the switching device comprises a plurality of integrated circuits,

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each of the plurality of integrated circuits being structurally identical to the MS-SAR integrated circuit, each of the plurality of integrated circuits being coupled to the switch fabric, wherein some of the plurality of integrated circuits operate in an ingress mode and wherein others of the plurality of integrated circuits operate in an egress mode, and wherein the first bus interfaces of the integrated circuits that operate in the egress mode are coupled to the switch fabric.

Claims 46 to 47 (cancelled)

Claim 48 (previously presented): The switching device of Claim 45, wherein the MS-SAR comprises a lookup engine, a segmentation engine, and a reassembly engine, a single data path extending from the first bus interface, through the lookup engine, through the segmentation engine, through the reassembly engine, and to the second bus interface.

Claim 49 (currently amended): A method comprising:

coupling a multi-service segmentation and reassembly (MS-SAR) integrated device to a particular switch fabric, the particular switch fabric being either a cell-based switch fabric or a packet-based switch fabric, the MS-SAR being configurable in a first way such that the MS-SAR can operate with a cell-based switch fabric, the MS-SAR being configurable in a second way such that the MS-SAR can operate with a packet-based switch fabric; and

configuring the MS-SAR in the first way if the particular switch fabric is a cell-based switch fabric but configuring the MS-SAR in the second way if the particular switch fabric is a packet-based switch fabric; ;

wherein the MS-SAR is configured by writing to a mode register within the MS-SAR.

Claim 50 (previously presented): The method of Claim 49, wherein the MS-SAR operates in an ingress mode, the MS-SAR receiving both cell-protocol traffic and packet-protocol traffic.

Claim 51 (previously presented): The method of Claim 49, wherein the MS-SAR operates in an egress mode, the MS-SAR outputting both cell-protocol traffic and packet-protocol traffic.

Claim 52 (cancelled)